

TV AF

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the U.S. Postal Service on the date shown below with sufficient postage as First Class Mail, in an envelope addressed to: MS Appeal Brief - Patents, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Dated: April 23, 2007

Signature: _____

(Marcus J. Millet)

Docket No.: TESSERA 3.0-176 DIV
(PATENT)



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Beroz et al.

Application No.: 09/942,386

Group Art Unit: 1762

Filed: August 30, 2001

Examiner: Brian K. Talbot

For: COMPONENTS WITH CONDUCTIVE
SOLDER MASK LAYERS

REPLY BRIEF

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This Reply Brief is responsive to the Examiner's Answer mailed March 30, 2007. The Examiner's Answer leaves no doubt that the rejections are based on the assertion that Carey et al., U.S. Patent No. 5,597,469 ("Carey") teaches that layer 16 in the reference structure can be formed from "non-solder wettable metal films such as chromium or aluminum" (Answer 3). It is respectfully submitted that such assertion is in error. Carey only mentions "non-solder wettable metal films" as suitable materials for use as the solder mask 30. Thus, the reference passage relied upon in the Answer as teaching use of metal films (col.6 ll.35-45) is part of Carey's discussion of suitable solder masks 30. That discussion is reproduced below:

The solder mask 30 is preferably of an organic polymer film that can be patterned by stenciling or by lithography processes after application.

Aqueous processable solder resists are preferred since they exhibit a reduced tendency to leave residues in the apertures 16' which can interfere with plating and form inclusions in the solder. For applications which can benefit from "tenting" (. . . [parenthetical text omitted]) of plated through holes in the printed circuit board, a dry film solder resist which naturally tents the plated through holes is preferred over liquid resist materials which do not. Non-solder wettable metal films, such as chromium, can also be used since differential etch rates between chromium and copper and solder materials can be achieved by known processes and etchants. Aluminum is also non-solder wettable and thus also potentially useful.

(Carey, col.6 ll. 22-43 (emphasis supplied).)

It is clear from the reference as a whole that layer 16 is formed from a dielectric material. First, the reference refers to this layer as "a dielectric layer having apertures or recesses (e.g., blind apertures) and conductors and/or pads exposed by those apertures or recesses" (*id.*, Abstract) and expressly states that "layer 16 can be formed as a thick film dielectric" (*id.*, col.6 ll.47-48). Second, the reference clearly contemplates the solder (40, Fig. 5) remaining in contact with layer 16 after reflow (Fig. 6). If layer 16 were formed from an electrically conductive metal (such as chromium or aluminum), all of the numerous pads 14 (Carey, col.3 ll.57-59) would be short-circuited to one another and the product of the method would be useless.

Thus, Carey merely teaches that solder mask 30 (and not layer 16) may be formed from a metal. However, solder mask 30 is removed before the solder 40 is reflowed (Figs. 5 and 6; col.5 l.47 *et seq.*). A metallic solder mask 30 could not constitute the "potential plane element" referred to in present claim 1. For example, because the solder mask 30 is removed before reflow, reflow followed by cooling and solidification could not form "solder masses projecting through . . . openings in" solder mask 30 as recited in claim 1, paragraph (c). Thus,

even assuming that Carey could be modified by Yeh et al., U.S. Patent No. 5,803,340 ("Yeh") or Pierson, U.S. Patent No. 5,938,106 ("Pierson") to include cooling to solidify the solder, the combined references still would not meet claim 1.

For the reasons set forth above and for the reasons set forth in Appellant's principal brief, the rejection of Claims 1-4 on Carey in combination with Yeh or Pierson should be reversed.

Dated: April 23, 2007

Respectfully submitted,

By 

Marcus J. Millet
Registration No.: 28,241
LERNER, DAVID, LITTENBERG,
KRUMHOLZ & MENTLIK, LLP
600 South Avenue West
Westfield, New Jersey 07090
(908) 654-5000
Attorney for Applicant